ORIGINAL

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MEMORANDUM

To:	Bonnie Lavelle, Chris Weis
From:	Adrian Bradley, Mary Goldade
Date:	November 16, 1999
Project:	Vasquez Boulevard and I-70 Phase III Field Investigation
Re:	Standard Operating Procedures for Biomonitoring
cc:	Project Files

Attached for your review are the Standard Operating Procedures (SOPs) for collection of urine and blood that were used during the voluntary biomonitoring program that took place in November-December, 1998 as part of the Risk-Based Sampling program. A training video was used last year to demonstrate the approved method for hair collection. However, ISSI has on file a draft version of a hair collection procedure that may serve as documentation for the biomonitoring portion of the Phase III Field Investigation. This is also attached for your review.

The SOPs used last year are acceptable and may be used again. However, ISSI has already available urine and blood collection methods (in draft form) that can be adapted for use at this site. These SOPs would provide additional detail and documentation to support the sampling effort. We estimate that the time needed to adapt the blood and urine collection methods is approximately 4-6 hours. Please let us know if you would like us to revise the SOPs.

R:\Vasquez & I-70\Project Plans\SOPs\Biomonitoring\SOPmemo.wpd

Contract No.: N00174-99-D-003
Delivery Order No.: 0002
Purchase Request No.: 9203.3858
EPA IAG No.: DW17953800-01-0

TECHNICAL STANDARD OPERATING PROCEDURE
-DRAFT-

COMPOSITE HAIR SAMPLING OF RESIDENTS FOR DETERMINATION OF RISK-BASED EXPOSURE TO TOTAL ARSENIC

1.0 PURPOSE

The purpose of this standard operating procedure (SOP) is to provide a standardized method to be employed by employees of EPA Region VIII or contractors and subcontractors supporting Region VIII projects and tasks. This SOP describes the equipment and operations used to sample hair. The procedure outlines the method for composite hair sampling that will ultimately be used for risk-based determination of arsenic concentrations. Site-specific deviations from the procedures presented in this document must be approved by the Project Manager or Regional Toxicologist prior to initiation of the sampling activity.

2.0 RESPONSIBILITIES

Individuals obtaining lead concentration measurements are responsible for performing the applicable tasks outlined in this procedure when conducting composite hair sampling. The Project Leader may be an EPA employee or contractor who is responsible for overseeing the composite hair sampling activities. The Project Leader is also responsible for checking all work performed and verifying that the work satisfies the specific tasks outlined by this SOP and the Project Plan. It is the responsibility of the Project Leader to communicate with the Field Personnel specific collection objectives and anticipate situations that require deviation from the Project Plan. It is also the responsibility of the Project Leader to communicate the need for any deviations from the Project Plan with the appropriate EPA Region VIII personnel (Regional Project Manager or Regional Toxicologist).

3.0 PROCEDURE

3.1 Equipment

- alcohol wipes
- latex gloves
- stainless steel scissors
- small plastic sampling vial (for short hair)
- large plastic sampling vial (for long hair)
- sealable plastic bags
- permanent marker or ink pen
- trash bag
- tape measure or ruler

3.2 Sampling Procedure

For hair samples less than two inches:

Wash hands thoroughly with soap and water prior to taking hair sample. Put on a new pair of latex gloves. Clean the scissors blades with a new alcohol wipe. Tightly twist a ¼ inch diameter (approximately as thick as a pencil or about 0.5 g) bundle of hair from the nape of the neck. Carefully snip the hair as close to the scalp as possible. Use a tape measure or pocket ruler to measure the length of hair cut. Remove the cap from the small plastic sampling vial, and fill with loosely packed hair. Replace the cap and place the vial in the plastic bag. Seal the bag and label the appropriate sampling identification and measured hair length with a permanent marker or ink pen. (Samples do not need to be refrigerated.) Use another new alcohol wipe to clean the scissor blades. After the scissors have been cleaned, throw away both the alcohol wipes and the latex gloves in the trash bag.

For hair samples longer than two inches:

Wash hands thoroughly with soap and water prior to taking hair sample. Put on a new pair of latex gloves. Clean the scissor blades with a new alcohol wipe. Tightly twist a ¼ inch diameter (approximately as thick as a pencil or about 0.5 g) bundle of hair from the nape of the neck. Carefully snip the hair as close to the scalp as possible. Use a tape measure or pocket ruler to measure the length of hair cut. Remove the cap from the large plastic sampling vial, and fill with loosely packed hair. Replace the cap and place the vial in the plastic bag. Seal the bag and label the appropriate sampling identification and measured hair length with a permanent marker or ink pen. (Samples do not need to be refrigerated.) Use another new alcohol wipe to clean the scissor blades. After the scissors have been cleaned, throw away both the alcohol wipes and the latex gloves in the trash bag.

3.3 Hair Sample Cleaning

Note: Hair samples will be washed at the analytical laboratory rather than in the field. The following procedures are recommended:

Wash hands thoroughly with soap and water prior to handling hair sample. Put on a new pair of latex gloves for each sample. Open sealed bag and remove vial cap. Remove half of the sample (about 0.2 g) and place in a new 15 x 100mm disposable plastic petri dish. Wash with successive portions of 1.0% w/v sodium lauryl sulfate (or ammonium lauryl sulfate). After 30 minute contact with occasional agitation, the hair will be rinsed six times with deionized water and dried under laminar flow Class 100 air.

4.0 REFERENCES

Paschal, D.C., E.S. DiPietro, D.L. Phillips and E.W. Gunter. 1989. Age Dependence of Metals in Hair in a Selected U.S. Population. Environmental Research. 48: 17-28.

USEPA. 1978. Human Scalp Hair: An Environmental Exposure Index for Trace Elements. II. Seventeen Trace Elements in Four New Jersey Communities (1972). EPA 600/1-78-37b

Traci,
I called Psychemedics and they do NOT do hair Arsenic testing, but this tape will demonstrate how our people were trained to do collections.
Bob

CONCENTRA MEDICAL CENTERS

URINE DRUG SCREEN COLLECTION PROCEDURES

VERIFY DONORS ID
- Verify at front desk and again in back
- Donor under age - verify parental consent
- No ID - must have direct supervisor identification
    1. Complete Patient Identification Form
    2. No supervisor on DOT - cannot perform test
    3. No supervisor on non-DOT - contact employer for instructions

ENTER SOCIAL SECURITY NUMBER
- If donor refuses to give number, phone number or drivers license may be used
- If donor provides wrong number the number is validated by the donors signature on page 4 of the COC.

HAVE DONOR REMOVE BULKY OUTER CLOTHING
- No hats, jackets, coats
- Purses, briefcases should be locked. If not, always remove wallet

INSTRUCT DONOR TO RINSE HANDS
- No soap to be used

PROVIDE SEALED COLLECTION CONTAINER – Sterile specimen cup for UAs.
- Open in presence of donor
- Accompany donor to restroom
- Read temperature within 4minutes, preferably immediately.

TEMPERATURE OUT OF RANGE
- Recheck temperature by placing new temperature strip on container or pouring into new collection container in presence of donor.
- Contact Center Administrator - Complete Inadequate Specimen Procedures Form
- Offer to take donor's temperature
- Notify donor (regulated)
    1. this sample to be sent to lab
    2. new sample is required at this time

- Notify donor (non-regulated)
    1. contact company representative and inform of cold specimen
    2. educate on DOT protocol
    3. follow employer instructions as to individual company policy
    4. if company elects to not follow DOT protocol - document on reverse side of *Inadequate Procedures Form.*

INSUFFICIENT QUANTITY OF URINE "SHY BLADDER SYNDROME"

- Indicate to donor QNS - Complete Inadequate Specimen Procedures Form
- Observe time on common clock
- Regulated - Inform donor and document
    1. must remain in collection site
    2. drink 8oz of liquid every half hour
    3. maximum 40oz and 3 hours
- Non-Regulated
    1. contact company representative and inform of QNS
    2. educate on DOT protocol
    3. follow employer instructions as to individual company policy
    4. if company elects to not follow DOT protocol - document on reverse side of *Inadequate Procedures Form*

KEEP SPECIMEN IN FULL VIEW OF THE DONOR AT ALL TIMES

- Pour specimen into transport bottles
- Date custody seals
- Place seals on bottles
- *Ask donor to initial seals*

COMPLETE CHAIN OF CUSTODY

- Specimen temperature
- Collector information
- Chain of custody
- Package with specimen

DONOR INFORMATION ON MRO FORM

- Home phone number
- Print name
- Signature
- Date of birth
- Non-regulated must have donor phone number on COC

MRO REPORTING

- MRO copy of COC must be faxed immediately then mailed

TRAINEE NAME_____ DATE_____

VENIPUNCTURE CHECKLIST	TRAINER INITIALS (3X)		
1. Confirm identity of patient & clarify order			
2. Explain procedure to patient			
3. Organize all materials needed to complete procedure.			
This should include blood tubes, vacutainer needle,			
vactainer holder, alcohol preps, 2x2s, tourniquet			
and a bandaid			
4. Don gloves			
5. Apply tourniquet 3-5 inches above site			
6. Cleanse skin with alcohol for 30 seconds with 1 or			
more preps, in an outward circular motion			
7. Insert needle, bevel up, parallel to the vein			
8. While holding the vacutainer holder steady, gently			
press tube into needle			
9. Repeat this with all required tubes			
10. After last tube is disengaged from the needle, remove			
the tourniquet.			
11. Holding the 2x2 over site, remove the needle & apply			
firm pressure to site for 1 minute.			
12. Apply bandaid to site over 2x2 & instruct patient to			
leave in place for 1 hour.			
13. Dispose of needle in sharps & and blood saturated			
materials in biohazard.			
14. Label the blood tubes appropriately & be sure your			
requisition has all required patient information before			
you dismiss him/her.			
NOTES			